

ADAM-6520

**5-Port Industrial 10/100 Mbps
Ethernet Switch**

User Manual

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This Manual Covers the Following Models

- ADAM-6520
- ADAM-6520I

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Product Warranty (2 years)

Advantech warrants to you, the original purchaser, that each of its products will be free from defects in materials and workmanship for two years from the date of purchase.

This warranty does not apply to any products which have been repaired or altered by persons other than repair personnel authorized by Advantech, or which have been subject to misuse, abuse, accident or improper installation. Advantech assumes no liability under the terms of this warranty as a consequence of such events.

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If you think you have a defective product, follow these steps:

1. Collect all the information about the problem encountered. (For example, CPU speed, Advantech products used, other hardware and software used, etc.) Note anything abnormal and list any onscreen messages you get when the problem occurs.
2. Call your dealer and describe the problem. Please have your manual, product, and any helpful information readily available.
3. If your product is diagnosed as defective, obtain an RMA (return merchandize authorization) number from your dealer. This allows us to process your return more quickly.
4. Carefully pack the defective product, a fully-completed Repair and Replacement Order Card and a photocopy proof of purchase date (such as your sales receipt) in a shippable container. A product returned without proof of the purchase date is not eligible for warranty service.
5. Write the RMA number visibly on the outside of the package and ship it prepaid to your dealer.

Declaration of Conformity

CE

This product has passed the CE test for environmental specifications when shielded cables are used for external wiring. We recommend the use of shielded cables. This kind of cable is available from Advantech. Please contact your local supplier for ordering information.

FCC Class A

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Technical Support and Assistance

- Step 1. Visit the Advantech web site at **www.advantech.com/support** where you can find the latest information about the product.
- Step 2. Contact your distributor, sales representative, or Advantech's customer service center for technical support if you need additional assistance. Please have the following information ready before you call:
 - Product name and serial number
 - Description of your peripheral attachments
 - Description of your software (operating system, version, application software, etc.)
 - A complete description of the problem
 - The exact wording of any error messages

Document Feedback

To assist us in making improvements to this manual, we would welcome comments and constructive criticism. Please send all such - in writing to: support@advantech.com

Contents

Chapter 1	Overview	2
1.1	Introduction	2
1.1.1	High-Speed Transmission	2
1.1.2	Flexible Mounting	2
1.1.3	Advanced Protection for Power Line and Ethernet Port	2
1.1.4	Wide Operating Temperature Range	3
1.1.5	Easy Troubleshooting	3
1.2	Features	3
1.3	Specifications	4
1.4	Ordering Information	5
Chapter 2	Installation	8
2.1	Packing List.....	8
2.2	Top / Front / Rear View	9
2.2.1	Dimensions	9
	Figure 2.1:Top View	9
	Figure 2.2:Front Panel	9
	Figure 2.3:Rear View	9
2.3	LED Indicators	10
	Table 2.1:ADAM-6520 LED Definitions	10
2.4	Mounting	11
	Figure 2.4:Panel Mounting	11
	Figure 2.5:DIN Rail Mounting	12
	Figure 2.6:Piggyback Stacking	12
2.5	Network Connection	13
2.5.1	Connection to Devices	13
2.5.2	Connection to other Hubs or Switches	13
2.6	Power Connection	14

Overview

This chapter gives an overview of the ADAM-6520's features and full specifications.

Sections include:

- Introduction
- Features
- Specifications
- Ordering Information

Chapter 1 Overview

1.1 Introduction

ADAM-6520 is a 5-port industrial-grade 10/100 Mbps Ethernet switch for fast and cost-efficient network expansion. It connects up to 5 workstations and auto-detects both 10 and 100 Mbps network speeds. Moreover, ADAM-6520 supports auto crossover to provide a flexible networking environment, connecting to the network with any port.

ADAM-6520 provides three methods for mounting in an industrial environment: DIN rail, wall/panel, or piggyback stacking. ADAM-6520 has a flexible input voltage range of $+10\sim 30\text{ V}_{\text{DC}}$ at the terminal block. And, the operating temperature of ADAM-6520 is from -10 to 70°C while ADAM-6520I is from -40 to 85°C . The above features make ADAM-6520 more stable and reliable than normal Ethernet switches. Thus, ADAM-6520 is especially suitable for industrial environments with Ethernet networking like: semiconductor factories, warehouses, conveyor belt systems and more.

1.1.1 High-Speed Transmission

ADAM-6520 includes a switch controller that automatically senses transmission speeds (10/100 Mbps). The RJ-45 interface also supports auto-detection, so MDI or MDI-X is automatically selected and a crossover cable is not required. All Ethernet ports have memory buffers that support the store-and-forward mechanism. This assures that data is properly transmitted.

1.1.2 Flexible Mounting

Due to its versatility and innovative design, ADAM-6520 can be fixed in three ways: DIN rail, panel and piggyback mounting.

1.1.3 Advanced Protection for Power Line and Ethernet Port

The power line of ADAM-6520 supports up to $3000\text{ V}_{\text{DC}}$ surge protection, which secure equipment against unregulated voltage and make systems safer and more reliable. Meanwhile, $4000\text{ V}_{\text{DC}}$ ESD protection for the Ethernet ports makes ADAM-6520 more suitable for harsh environments.

1.1.4 Wide Operating Temperature Range

The operating temperature of ADAM-6520 is from -10 to 70° C, while ADAM-6520I offers a very wide range from -40 to 85° C. With such a wide range you can use ADAM-6520 and ADAM-6520I in some of the harshest industrial environments that exist.

1.1.5 Easy Troubleshooting

There are six LED indicators supplied to aid troubleshooting for ADAM-6520. Besides one common collision LED, each port has a pair of LEDs to indicate link status and port activity. That makes it easy to indicate collisions, link status, power failure and data reception for on-site diagnostics.

1.2 Features

- Provides 5 x 10/100 Mbps Ethernet ports with RJ-45 connector
- Supports full/half duplex flow control
- Supports MDI/MDI-X auto crossover
- Provides broadcast storm protection
- Embedded switch controller, supports auto-negotiation
- Embedded memory buffer, supports store-and-forward transmission
- Supports +10 ~ 30 V_{DC} voltage
- Provides 3000 V_{DC} surge protection for power line
- Provides 4000 V_{DC} Ethernet ESD protection
- Provides flexible mountings: DIN rail, panel, piggyback stacking
- Supports wide-range operating temperature

1.3 Specifications

Communications

- **Compatibility:** IEEE 802.3, IEEE 802.3u
- **LAN:** 5 x 10/100 Base-TX
- **Transmission Distance:** 100 m

Interface

- **Connectors:** 5 x RJ-45 (10/100 Mbps),
1 x Plug-in screw terminal for power input
- **Indicators:** LEDs for : Power, 10/100 Mbps

Power

- **Input Voltage:** Unregulated 10 ~ 30 V_{DC}
- **Power Consumption:** Max. 2.4 W

Mechanism

- **Enclosure:** IP30, ABS+PC
- **Dimensions:** 70 x 100 x 25 mm (W x H x D)
- **Mounting:** DIN 35 rail, stack, wall

Protection

- **ESD Protection:** 4000 V_{DC} (Ethernet)
- **Surge Protection:** 3000 V_{DC} (Power)

Environment

- **Operating Temperature:**
DIN rail or wall mounted:
ADAM-6520: -10 ~ 70° C (14~158° F)
ADAM-6520I: -40 ~ 85° C (-40~185° F)
Stack mounted:
ADAM-6520: -10 ~ 60° C (14~140° F)
ADAM-6520I: -40 ~ 75° C (-40~167° F)
- **Storage Temperature:**
ADAM-6520: -20 ~ 80° C (-4~176° F)
ADAM-6520I: -50 ~ 95° C (-58~203° F)
- **Operating Humidity:** 20 to 95% (non-condensing)
- **Storage Humidity:** 0 to 95% (non-condensing)

Certifications

- **Safety:** UL 60950, CAN/CSA-C22.2 No.60950
- **EMC:** FCC Part 15 CISPR 22/EN55022 Class A
 - EN55024
 - EN6100-3-2
 - EN6100-3-3
 - EN6100-4-2
 - EN6100-4-3
 - EN6100-4-4
 - EN6100-4-5
 - EN6100-4-6
 - EN6100-4-8
 - EN6100-4-11
- **MTBF:** 416,000 hours

1.4 Ordering Information

- **ADAM-6520** 5-Port Industrial 10/100 Mbps Ethernet Switch
- **ADAM-6520I** 5-Port Industrial 10/100 Mbps Ethernet Switch w/
Wide Operating Temp.

Installation

In this chapter, you will be given an overview of the ADAM-6520 hardware installation procedure.

Sections include:

- Packing List
- Top / Front / Rear View
- LED Indicators
- Connecting the Hardware
- Network Connection
- Power Connection

Chapter 2 Installation

2.1 Packing List

Before setting up the system, check that the items listed below are included and in good condition. If any item does not accord with the table, please contact your dealer immediately.

- 1 x ADAM-6520
- 1 x INET CD-ROM
- 1 x DIN rail mounting adapter
- 1 x Panel mounting bracket

2.2 Top / Front / Rear View

2.2.1 Dimensions

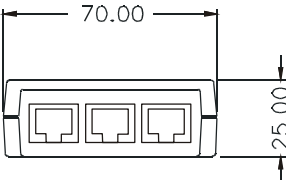


Figure 2.1: Top View

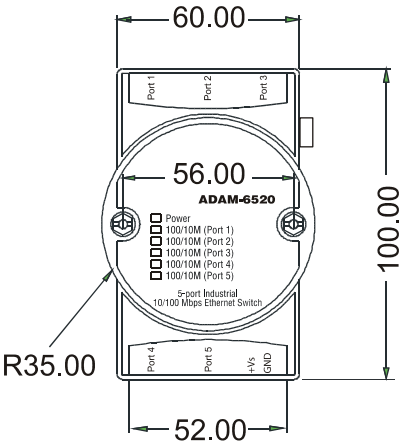


Figure 2.2: Front Panel

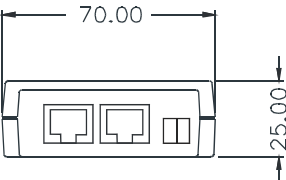


Figure 2.3: Rear View

2.3 LED Indicators

There are six network status LEDs located on the top panel of ADAM-6520, one for power, and one for each of the network ports.

<i>Table 2.1: ADAM-6520 LED Definitions</i>			
LED	Color	State	Description
Power	Green	On	Power is on
		Off	Power is off
100/10M (Port 1 ~5)	Green (link)	On	Connected to network
		Off	Not connected to network
	Orange (speed)	On	Linked to 100 Mbps network
		Off	Linked to 10 Mbps network

2.4 Mounting

Due to its versatility and innovative design, the ADAM-6520 can be:

- Fixed to a wall or panel
- Fixed to a DIN Rail.
- “Piggyback” stacked

Panel Mounting

ADAM modules can be attached to a wall using the included brackets. Each bracket comes with four screws; first attach the bracket to the bottom of the ADAM module. Next, screw the bracket to the wall.

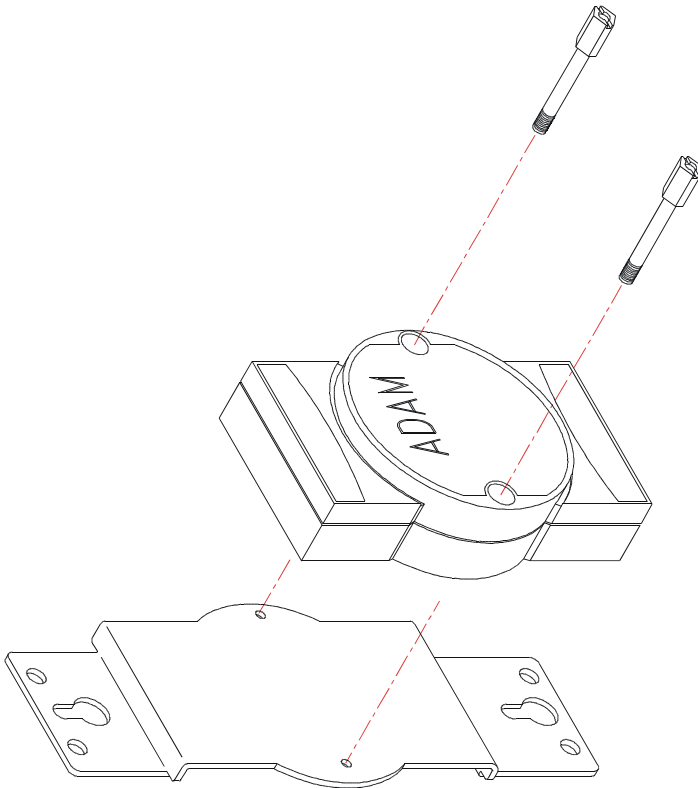


Figure 2.4: Panel Mounting

DIN Rail Mounting

You can mount ADAM modules on a standard 35 mm DIN Rail. First, use two screws to attach the DIN rail bracket to the ADAM module. Because ADAM modules use special hex head slotted shoulder screws, the tops of the screws will be even with the front of the module. Snap the module onto the DIN rail.

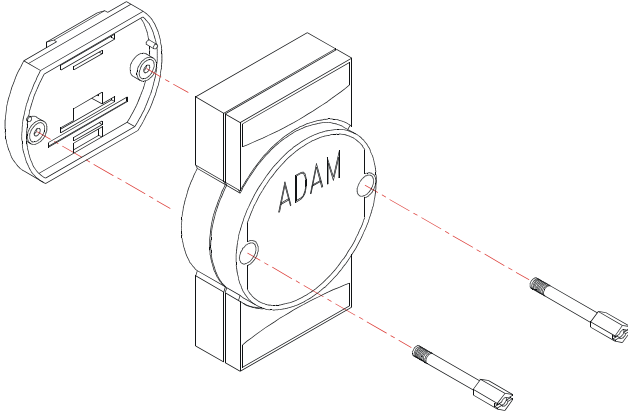


Figure 2.5: DIN Rail Mounting

Piggyback Stack

Several ADAM modules can be stacked as seen in the figure below

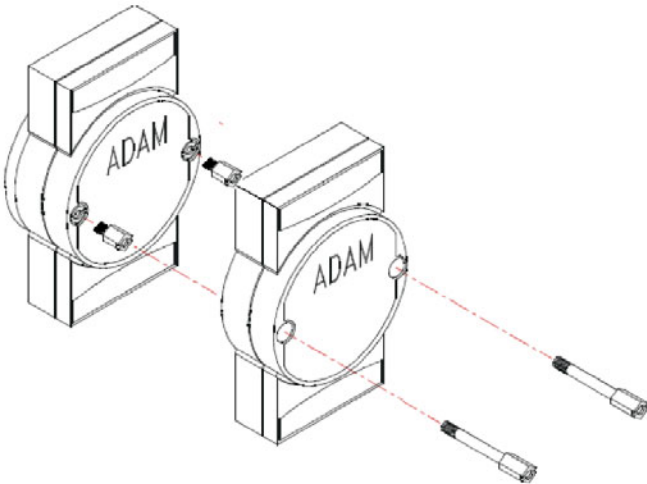


Figure 2.6: Piggyback Stacking

2.5 Network Connection

2.5.1 Connection to Devices

Each of the switch's twisted-pair ports can be used to connect to a controller or other devices. Use a straight-through twisted-pair cable with RJ-45 connectors on both ends. The twisted-pair cable extended from a twisted-pair port is called a "twisted-pair segment". It can be up to 100 meters long. You can connect any RJ-45 (MDI-X) station port on the switch to any device that uses a standard network interface such as a workstation or server.

2.5.2 Connection to other Hubs or Switches

ADAM-6520 has five RJ-45 ports that support connections to 10 or 100 Mbps Ethernet networks, and half or full-duplex operation. ADAM-6520 can be connected to other hubs or switches via a two-pair straight through cable or crossover cable. The connection can be made from any port on ADAM-6520 (MDI-X) to other hubs or switches by either their MDI-X port or uplink MDI port.

ADAM-6520 supports auto-crossover, so each port allows you to connect switches together and expand an existing network easily using either straight through or a crossover Ethernet cable. You can connect any RJ-45(MDI-X) port on the switch to a device like a switch, bridge or router.

2.6 Power Connection

You should take the following steps to connect ADAM-6520 to power.

1. Connect the power cable to the two connectors.
2. Connect the power cable to a power adapter.

